

Agricultural REVIEW

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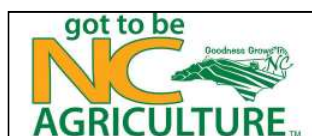
Upcoming Ag Review deadlines

-- April deadline is March 2

-- May deadline is April 1

-- June deadline is May 1

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Purple carrot research may offer farmers another crop

Purple carrots may seem like a fantasy right out of Alice's Adventures in Wonderland – a quirky little snack you'd only find by following a white hare down a rabbit hole. They're no fantasy though. Instead, purple carrots are a reality at some research stations in North Carolina. They're stars of some serious research to see if they could be a new cash crop for North Carolina farmers.

Purple carrots are actually quite old – even older than orange carrots, according to the World Carrot museum. Orange carrots were first developed and documented in western Europe in the late 1500's and early 1600's. The taste comparison is a matter of preference. Some purple varieties have noticeably less sugar, which often makes them taste less sweet.

However, taste wasn't the top concern when recent research on purple carrots began. There is an increasing market for natural dyes. So researchers are trying to perfect purple carrot growth and figure out if North Carolina could be a major provider of natural purple pigments. NCDA&CS research stations have been sites for that purple carrot growth and research. Possibilities for ways to use the carrots have already expanded beyond the initial idea, so there's real interest in exploring further. "[It seems] every month we're finding new uses for purple carrots," said Paul Ulanich, Ph.D., with The North Carolina Biotechnology Center. "We've definitely kept an open mind. It's been a pleasant surprise."

(See Purple carrots, pg. 8)



As part of the ongoing research project on purple carrots, various elements of data are collected from each variety, including length and diameter of carrots. Photo courtesy of Tidewater Agromonics.

Boll weevil assessment remains at 75 cents per acre

The board of the Boll Weevil Eradication Foundation of North Carolina has set the 2020 boll weevil assessment at 75 cents per acre of cotton. The amount remains the same as in 2019.

The fee supports the foundation's efforts to monitor cotton acreage in North Carolina for any re-introduction of the boll weevil and to respond promptly with eradication treatments if necessary.

"This trapping and monitoring program has proven to be a great investment for farmers who already have a lot of variables to manage in raising a crop," said Agriculture Commissioner Steve Troxler. "Eliminating the boll weevil from our state years ago is what allowed us to have a viable cotton crop. We certainly don't want to see the return of this devastating pest, and this program helps us keep an eye on cotton fields in case of any spot re-introductions."

Foundation contractors will install the green-colored traps and monitor from late summer until after harvest and frost. Because the

focus of North Carolina's program has shifted from eradication to monitoring, the number of traps in fields has decreased. As such, each trap is critical, and farmers are encouraged to contact the foundation if traps are damaged or knocked down.

More than 8,000 traps were placed and maintained in North Carolina last year, with each trap monitoring an average of 55 acres. To allow for trapping and monitoring, cotton growers are required to certify cotton acreage with their local U.S. Farm Service Agency office by July 15.

Farmers in 52 counties grew 493,798 certified acres of cotton last year. This acreage represented a nearly 18 percent increase over 2018 totals. The top three cotton-growing counties were Halifax, Northampton and Martin.

To learn more about the boll weevil monitoring program, go online to <http://www.ncagr.gov/plantindustry/plant/entomology/BW.htm>.

From the tractor



Commissioner Troxler

One of the pleasures of my job as Agriculture Commissioner is getting to meet people across the state and hearing about their farms and agribusinesses. I am constantly reminded in my travels that we are a diverse state with many different types of farms.

I was recently in Alleghany County and had the opportunity

by Agriculture Commissioner Steve Troxler

to meet with farmers at Dalton Farms, Evans Dairy and Wishon Evergreens. Later in the day I spoke at an agricultural event, highlighting the contributions of agriculture to the local economy.

Alleghany County is home to 567 farms, which tallied over \$34 million in cash receipts in 2017. It ranks in the Top 15 in the state in milk cows, all cattle, hay production and dairy cattle.

Agriculture and agribusinesses provide jobs across this state, and especially in rural North Carolina.

I was happy to recognize Edwin and Donna Edwards with a Century Family Farm certificate and Dustin Sheets and his family with a Bicentennial Family Farm award.

The Century Family Farm program celebrates its 50 anniversary this year. Altogether, we have over 1,800 farms in the program. At the



last reunion in 2016, we announced the creation of the Bicentennial Family Farm program to recognize families who have had 200 years of continuous farm ownership. There are over three dozen with this special recognition.

Reaching either of these milestones is quite an accomplishment that deserves celebration.

If your farm has been in continuous family ownership for 100 or 200

years or more, I would encourage you to fill out the application to become a Century Family Farm or a Bicentennial Family Farm.

We will hold the Century Family Farm Reunion this year at the State Fair on Monday, Oct. 19. The reunion of held every four years in Raleigh at the State Fair. It's a great celebration of the determination and resiliency of North Carolina farm families.

Agricultural Review

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Tobacco short course graduates recognized



Participants in the annual Tobacco Short Course offered by N.C. State University were recognized recently at the Tobacco Life Museum’s Breakfast with the Commissioner. The 26-member class learned about crop management and business considerations. The course included a production lecture by retired extension specialist Dr. David Smith, a day-long tobacco grading demonstration and training conducted USDA-AMS. Topics of focus included seedling production, disease and insect management, policy, insurance decisions, and curing and mechanization. It was held in conjunction with the Southern Farm Show.

Bioenergy and new crop projects receive \$1 million in funding

The N.C. Bioenergy Research Initiative and the New and Emerging Crops Program recently awarded \$1 million in grants for 15 projects aimed at boosting bioenergy opportunities and crop production in the state.

The Bioenergy Research Initiative began in 2013, after the North Carolina General Assembly allocated funding. The initiative’s grants of \$500,000 support the development of energy production from North Carolina agricultural and forest-based products.

The New and Emerging Crops Program began after the General Assembly approved it in 2018. By awarding \$500,000 in grants, the program advances its mission of identifying potential new crops, value-added products and agricultural enterprises and providing the agricultural research, marketing support, and education necessary to make these crops commercially viable and profitable for North Carolina’s growers and agribusinesses.

“These grants allow researchers to test possibilities for our state,” said Agriculture Commissioner Steve Troxler. “In some cases, the grants mean our research stations can continue great work that’s already been underway, while in other cases they’ll be tackling brand new projects. Either way, I’m confident they show promise as profitable endeavors for our state’s agriculture industry.”

Below is a list of grant amounts, recipients, titles and descriptions for each of the projects awarded through the 2020 Bioenergy Research Initiative:

-- \$33,212 to N.C. State University’s Department of Horticultural Science for a project titled *Bringing Energycane North*.

This project builds on previously funded projects by evaluating field trials of newly developed hybrids of energy canes. Breeding efforts will be expanded with the aim of introducing cold hardiness genes from the *Miscanthus* genus and the *Triplidium* genus into advanced energy cane lines.

-- \$122,594 to NCSU’s Department of Forestry and Environmental Resources for a 2.5-year project titled *Sycamore: Sustainable Bioenergy-Improved Soil Health*. The main objectives of this project are to 1) measure changes in soil chemical and physical properties to quantify improvements in soil health due to integration of sycamore into a short rotation coppice management scenario and 2) test the properties of sycamore wood for suitability for pellet production and energy yield.

-- \$105,000 to Carolina Land & Lakes RC&D for *Pellets for Plants* will expand on a previously funded project for two years. CL&L strives to reduce dependence on fossil fuels by using a carbon neutral, sustainable domestic fuel. This expansion will move to larger scale wood pellet and chip boiler furnaces capable of heating greenhouses in the Appalachia region of the state in nearly all conditions for the full growing season. Potential advantages of a pellet heating source for greenhouses include decreased fuel costs and decreased disease incidence due to plants growing in a drier environment.

-- \$53,609 to NCSU’s Department of Forestry and Environmental Resources to support *Sustainable Pellet Production for Poultry*, which aims to validate results of previously funded *Pellet for Pullets* projects. This comprehensive study will examine the technical and economic feasibility of wood pellets specifically produced for

the Western N.C. poultry industry by assessing their accessibility, sustainability, cost-effectiveness and impact on bird productivity and survivability in broiler houses.

-- \$30,465 to NCSU’s Department of Forestry and Environmental Resources to help a postdoctoral researcher continue work on *Loblolly Pine Biomass and Economic Analysis* for one year. This project evaluates the biomass production of loblolly pine due to variations of silviculture, genetics and stand density to help landowners optimize production in their biomass plantations.

-- \$80,738 to Appalachian State University’s Department of Sustainable Technology & the Built Environment to fund a two-year project titled *Biochar with Anaerobic Digestion: Enhancing Crops*. This project builds upon previous work by investigating the synergy between anaerobic digestion and biochar technologies and the potential for improved soil quality using biochar combined anaerobic digestate on Appalachia soils.

-- \$74,382 to NCSU’s Cooperative Tree Improvement Program to continue for two years the project titled *Loblolly Pine Biomass Genetics/Cropping Study*. Large genetic differences exist for growth, disease resistance and stem form in pine trees. The aim of this project is to evaluate different planting stock (families) in combination with different thinning regimes in order to inform landowners how best to maximize returns when supplying both the bioenergy and saw timber markets.

Below is a list of grant amounts, recipients, titles and descriptions for each of the projects awarded through the 2020 New and Emerging Crops Program:

-- \$83,340 to NCSU’s Department of Horticultural Science to fund *Optimal Hemp Planting and Harvest*

Dates. Funding another year of this project may help validate the ideal planting and harvest periods for optimizing floral yield of industrial hemp grown in outdoor production systems. In addition, this project will demonstrate and evaluate the economics, safety and quality of hemp produced using different drying systems. The much-needed production information generated from this study will be disseminated through reports, scientific and extension publications, and through field days where growers will have the opportunity to gain hands-on learning experience.

-- \$71,767 to NCSU’s Department of Crop and Soil Sciences to fund a second year of a project titled *Nitrogen and Potassium Rates for Floral CBD Hemp Production*. North Carolina growers have an immediate need for research-based fertility recommendations for industrial hemp grown for CBD. The goals of this project are to develop nitrogen and potassium fertility recommendations to maximize yield, establish plant tissue nitrogen and potassium sufficiency ranges, and evaluate if nitrogen, potassium and plant maturity affect floral tissue chemistry.

-- \$65,000 to the North Carolina Biotechnology Center to continue a project titled *Feasibility of N.C. Purple Carrot Production 2019-2020*. Purple carrots are a crop of interest for the growing fresh and processed vegetable markets, particularly the natural food colorant industry. Preliminary studies on variety and planting dates from the 2019 N.C. purple carrot trials yielded promising results. Additional research is needed on disease management and production economics before growers and industry can scale up production. This project will

identify diseases that will be prevalent in N.C. purple carrot production, determine disease control options and evaluate production economics in order for growers and industry to determine if purple carrots grown in N.C. are economical and meet quality expectations.

-- \$20,000 to NCSU’s Department of Horticultural Science for a project titled *Goumi Berry, a New Small Fruit*. The goumi berry is a temperate zone plant that produces large, red berries containing elevated levels of lycopene and flavonoids, important antioxidants. This two-year project will evaluate the growth and productivity of goumi berries to determine suitability as a new small fruit crop for North Carolina.

-- \$81,816 to NCSU’s Department of Horticultural Science will fund a two-year project titled *Improving N.C. Fresh-Market Muscadine Production*. Muscadines are native to the southeastern U.S. and are believed to be the first cultivated grape in the country. Recent developments in research highlighting potential anti-cancer properties of muscadine products as well as the recent development of muscadine varieties with favorable consumer properties (e.g., thin skin, large size, seedless) have created new market opportunities. These new varieties bring challenges of how production practices and environment affect growth, fruit quality and shelf life. This project will develop postharvest protocols and guidelines for different sized muscadine operations, produce management guidelines specific to new muscadine varieties and develop a comprehensive education and training program specific to fresh market muscadines.

(See Bioenergy and ...on pg. 4)

Time to test float bed water for tobacco transplants

Successful production of tobacco transplants starts with good water quality and with getting the right nutrient levels in the float solution. Growers preparing for transplant production should begin by having their source water tested by the N.C. Department of Agriculture and Consumer Services.

“Alkalinity, pH, sodium and chloride issues are the most common water quality problems we see with float bed source water in North Carolina,” said Dr. Kristin Hicks, Plant/Waste/Solution/Media Section chief of the Agronomic Services Division. “By getting the source water tested, growers can address any of these issues early on before they have a chance to impact transplant quality. The results from testing and making adjustments can be quite significant.”

After fertilizers have been mixed into the bays, growers should send in a sample of their nutrient solution to verify that target nutrient concentrations have been achieved. Testing of source water and nutrient solutions is available as a solution analysis through the Agronomic Services Division.

The test measures total alkalinity, pH, electrical conductivity (soluble salts) and the concentration of 12 essential plant nutrients including nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, zinc, copper, boron, and chloride plus sodium. The NCDA&CS Solution Analysis Report

provides this information as well as nutrient management recommendations by an agronomist.

Collecting & submitting nutrient solution samples

To collect a sample, use a clean, plastic bottle such as a 16-ounce soda or water bottle. Before filling the bottle, rinse it with the water being collected.

For source water—before sampling, run water 5 to 10 minutes and collect sample from the tap or emitter. Use the “ST” code for source water.

Solution Source Water

SP	Pesticide Solution
SH	Hydroponic-Nutrient
SF	Floriculture Production
ST	Tobacco Transplant Production
SV	Vegetable Transplant Production
SO	Other *

For nutrient solutions— Make sure fertilizer has been thoroughly mixed and is completely dissolved. Collect the sample from the emitter NOT the stock tank. Use the “NT” code for nutrient solutions. **Please specify if you are using an organic nutrient solution.**

Nutrient Solution

NS	General (indicate target conc. in comments)
NT	Tobacco
NL	Pour-thru Leachate
NO	Other *

Label each sample with a sample ID and fill out the Solution Analysis Information form. Forms are available from the Agronomic Division office in Raleigh, regional agronomists, county extension centers and agribusiness outlets. They also are available on the Agronomic Division website at <http://www.ncagr.gov/agronomi/pdffiles/issoln.pdf>

The turnaround time for results is typically three to four days from the receipt of samples. Cost is \$5 for North Carolina residents or \$25 for samples from outside the state.

Samples should be mailed to the NCDA&CS Agronomic Services Solutions Section at either:

Mailing address (USPS):
1040 Mail Service Center, Raleigh, NC 27699

Physical address (UPS, FedEx):
4300 Reedy Creek Rd, Raleigh NC 27607

For questions about how to collect samples or interpret reports, contact the Agronomic Division at 919-733-2655. NCDA&CS regional agronomists and county Cooperative Extension agents are also good sources of advice. Go to www.ncagr.gov/agronomi/rahome.htm for a list of agronomists and their county assignments.

Schedule for last auxin training classes of the season

Anyone planning to work with auxin herbicides, such as 2,4-D or dicamba, in North Carolina in 2020 will need to attend an annual training. This marks the fourth year the state has required auxin users to complete training prior to applying the products.

Listed at right are the last classes of the season.

For more information on auxin training, contact the NCDA&CS at 919-733-3556 or a local County Cooperative Extension Service office.

Date	Time	County	Location	Contact
March 4	11 a.m.	Columbus/Cumberland/Bladen	Bladen County Extension Center 450 Smith Circle, Elizabethtown	Lydia Miles
March 4	4 p.m.	Robeson/Hoke/Scotland	Southeastern Agricultural Center 1027 U.S. Highway 74-ALT, Lumberton	Mac Malloy
March 6	2 p.m.	Lenior	Lenior County Extension Center 1791 N.C. Highway 11/55, Kinston	Steve Killete
March 16	1 p.m.	Pender/Onslow/Brunswick	Pender Cooperative Extension Center 801 S. Walker St., Burgaw	Mark Seitz/Mellisa Huffinan*
March 19	3 p.m.	Vance/Granville/Person/ Franklin/Wake	Vance County Regional Farmers Market 210 Southpark Drive, Henderson	Paul McKenzie*
March 26	7 p.m.	Johnston	Johnston County Agriculture Center 2736 N.C. Highway 210, Smithfield	Tim Britton

(*preregistration required)

Horse Events

Gov. James B. Hunt Jr. Horse Complex, State Fairgrounds, Raleigh, 919-733-4845

March 6-8 NCHJA “C” Indoors. Contact Joan Petty, 919-669-9877.

March 12-15 Raleigh Indoor Spring Classic. Contact Joan Petty, 919-669-9877.

March 18-21 Raleigh Spring Premier Benefit. Contact Joyce Wilson, 919-365-5149.

March 27-29 NCHJA “C” Indoors. Contact Joan Petty, 919-669-9877.

April 3-5 Region 12 & 15 Arabian Show. Contact Rory Meachum, 919-906-3510.

April 9-11 Raleigh Invitational Show. Contact Joyce Wilson, 919-365-5149.

April 11 & 12... Raleigh Spring Dressage. Contact Janine Malone, 919-269-7307.

April 17-19 Spring Holiday Classic. Contact Richard Isley, 336-908-3302.

April 17-19 NCHJA “C” Outdoors. Contact Joan Petty, 919-669-9877.

April 23-26 NCQHA Tarheel Spring Classic. Contact Randy Ratliff, 336-339-8773.

Sen. Bob Martin Eastern Agricultural Center, Williamston, 252-792-5111

March 13 & 14 N.C. Barrel Bonanza. Contact Fred Smith, 252-883-1641.

March 20-22 VRHA March into Spring Show & Green Reiner Festival. Contact Chris Wiley, 804-305-7398.

March 28 & 29 March Magic Dressage. Contact Cassidy Sitton, 618-201-3290.

April 2-5 2020 .Martinganza Quarter Horse & Futurity Show. Contact Susan Daniels, 919-894-2973.

April 11 & 12... NCHJA “C” Horse Show. Contact Emily Bates, 252-378-4474.

April 17-19 ECMHC Spring Fling Miniature Horse Show. Contact Katie Pulley, 757-334-6016.

April 25 & 26 .. April’s Just Horsin’ Round. Contact the Ag Center, 252-792-5111.

May 2 & 3 N.C. East Regional 4-H Youth Horse Show. Contact Esmeraldo Rojas, 919-212-9587.

May 9 & 10 NCHJA “C” Horse Show. Contact Emily Bates, 252-378-4474.

May 15-17 4 Beats for Pleasure Gaited Horse Show. Contact Shannon Gibbs, 919-255-0429.

May 29-31 VRHA Memorial Day Classic. Contact Chris Wiley, 804-305-7398.

June 6 & 7 NCHJA “C” Horse Show. Contact Bethanna Perry, 252-675-3017.

June 20 & 21 ... June’s Just Horsin’ Round Open Horse Show. Contact the Ag Center, 252-792-5111.

Southeastern N.C. Agricultural Events Center, Lumberton, 910-618-5699

March 2 Horse and Tack Auction. Contact Brad Stephens, 828-390-0878.

March 7 & 8 Cowboy Mounted Shooting. Contact Pamela Lohrey, 540-570-8785.

March 20-22 Obstacle Challenge. Contact Rose Cushing, 252-235-7645.

March 28 BBHA Open Show Fun Day. Contact Jerry King, 910-237-4525.

April 4 Da Bomb Barrel Racing. Contact Josh Smith, 910-639-6387.

April 6 Horse and Tack Auction. Contact Brad Stephens, 828-390-0878.

Western N.C. Ag Center, Fletcher, 828-687-1414

March 7 Coggins Clinic. Contact Danny Sharpe, 828-693-7387

April 24-26 Good Time Spring Classic. Contact Stacey Warner, 864-992-8664.

May 2 & 3 W. District 4-H Horse Show. Contact Shannon Coleman at shannon_coleman@ncsu.edu.

June 18-21 Asheville Alive Paso Fino Horse Show. Contact Ashley Aldred, contact@ashevillealive.net

***Show dates are subject to change. Call ahead to confirm.**

Keep up with the latest on the N.C. Department of Agriculture and Consumer Services through the department’s blog at www.ncagr.gov/blog or on Facebook or Twitter.

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NCDA&CS updates internal Guava root knot nematode quarantine

Agriculture Commissioner Steve Troxler recently approved an updated quarantine which amends regulations pertaining to the production and sales of sweet potato seed in North Carolina due to ongoing issues with Guava root knot nematodes (*Meloidogyne enterolobii*).

Under the updated quarantine, regulated articles are prohibited from movement to non-quarantined states unless they meet the conditions specifically outlined in the official declaration. Those conditions include:

- All sweet potato seed must be certified free of Guava root knot nematodes with a blue tag issued by the North Carolina Crop Improvement Association or other approved certifying agency, and must have a state phytosanitary certificate issued by NCDA&CS.
- All sweet potato plants must be certified free of soil and roots by NCDA&CS before leaving the quarantine area.
- Ornamental sweet potato cuttings and plants produced in soilless media will be grown under a state compliance agreement.

The only other state where Guava root knot nematode is known to occur is Florida.

Regulations regarding interstate movement of sweet potato seed, plants and vegetables for consumption are unchanged.

Guava root knot nematode is a serious pest of sweet potatoes, and can also infect cotton, soybeans, tobacco, potatoes, tomatoes, peppers, watermelons and other agricultural crops. The pest impacts both crop quality and yield, with damage similar to other root knot nematodes (*Meloidogyne spp.*), which moves through soil and infested roots.

Guava root knot nematode can only be detected through molecular analysis. Dr. Weimin Ye, nematode assay section chief of the NCDA&CS's Agronomic Services Division oversees one of the few labs nationwide that has the capability to test for this pest.

Farmers may contact their North Carolina Cooperative Extension Office to learn more about best management practices to prevent the spread of this destructive pest.

In October 2018, the N.C. Department of Agriculture and Consumer Services established an interior quarantine for all 100 N.C. counties for the Guava root knot nematode.

The quarantine was updated on April 4, 2019 to strengthen restrictions for movement of regulated articles within the state.

For questions regarding this quarantine, contact Joy Goforth, plant pest administrator at 919-707-3753 or joy.goforth@ncagr.gov.

Look for this logo and

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Classified Ads

Advertising in the Ag Review

Ads are run free for N.C. residents & can be submitted by mail to 1001 Mail Service Center, Raleigh NC 27699-1001; online at www.AgReview.org; or by fax to 919-733-5047. Ads **must** include name, address including zip code, phone number including area code, and **price or price range for every item** being sold.

Deadline for each issue is noon on the first working day of the month prior to publication. Limit is 30 words, editor reserves right to edit or reject ads. Limit 2 ads/person in different categories.

Bioenergy and new crop grants

(Continued from pg. 2)

– \$70,077 to NCSU's Department of Horticultural Science for a one-year project titled *Purple-fleshed Sweetpotatoes for N.C. Farmers*. Purple-fleshed sweet potatoes (PFSP) are packed with nutrients such as Vitamin C, anthocyanins and phenolics and possess a wide range of flavors, sweetness levels and textures. The goal of this project is to broaden the market options for sweet potatoes in North Carolina by developing and releasing new PFSP varieties. Funds for this project will be used to conduct on-farm and research station cultural management studies for potential new varieties, increasing PFSP seed stock for commercial scale testing, and developing a breeding nursery for improved next generation purple-fleshed sweet potato varieties.

– \$68,000 to NCSU's Department of Horticultural Science to fund a one-year study titled *Oriental Crisp-Flesh Melons for North Carolina*. These specialty melons will offer North Carolina growers an alternative to the popular, but no longer available 'Sprite' melon. The objective of this research project is to develop varieties of oriental crisp-flesh melons with local adaptation to North Carolina's unique growing environment. New varieties will have improved flavor and increased disease resistance.

– \$40,000 to N.C. A&T State University's College of Agriculture and Environmental Sciences to support a one-year project titled *Turning Profits by Growing Ethnic Crops*. North Carolina's population is becoming more diverse with significant increases in the number of residents who are from Asia, Africa and South America. This, in addition to increased consumer demand for fresh and healthy foods, has led to an expansion of new restaurants, community grocery stores and farmer's markets offering ethnic foods. Opportunities exist for North Carolina farmers to grow crops for this emerging market; however, there here has been limited research and educational programs in N.C. focusing on ethnic crops. The objective of this study will be to identify and evaluate three to four varieties of new and emerging specialty crops, mostly multifunctional ethnic vegetables, fruits and flowers grown in an organic production system. Information generated from this study will be shared at workshops and field days.

AgroTips

Test for nematodes before planting vegetables.

Nematodes pose a major threat to nearly all vegetable crops in all soils. Unless you intend to apply a preplant fumigant, it is a good idea to collect soil samples for nematode assay before seedlings are planted and mulched. Any steps to prevent nematode problems must be taken long before the crop is established. For information on collecting and submitting samples for nematode assay, visit www.ncagr.gov/agronomi/uymem.htm. There are no chemicals available for in-home gardens, but there are some plant cultivars with resistance to root-knot nematodes. See NemaNote 12 for details.

Now is the time to collect tissue samples from wheat.

Depending on where you live, you may need to sample now (eastern counties) or wait until late March (western counties). The best time to take tissue samples is when the wheat is at Zadoks Growth Stage 30 or Feekes Stage 4–5. At these growth stages, stems are upright and tillering has stopped. To collect a sample, break wheat plants off about 1/2 inch above the ground. Each sample should consist of about two handfuls of wheat—a composite gathered from 10 to 20 areas throughout the field. A pictorial guide to tissue sampling is available online at www.ncagr.gov/agronomi/pictorial.htm. Be sure to read the new wheat sampling and fertilization guidelines from NCSU.

When growing peanuts, use agronomic tests to monitor zinc levels in the soil.

Growers who value the prime farmland where peanuts are produced should consider using alternate sites for waste application. Peanuts are very sensitive to certain metals found in waste, particularly zinc. Soils with NCDA&CS zinc index (Zn-I) values as low as 300 can be toxic to peanuts, even though other crops can tolerate levels up to Zn-I=2000.

In some areas, soil test data for peanut land already appear to show increases in zinc levels, indicating that waste is being applied to these fields. An important aspect of managing sites where waste is applied is to maintain a pH of 6.0–6.5. Low soil pH increases the availability and toxicity of metals.

Bucolic briefs

The N.C. Pork Council will hold its annual meeting, conference and awards luncheon March 11 at the Raleigh Hilton North Hills. Conference registration is free, but the cost for the awards lunch is \$15 in advance or \$20 at the door. To register or for more information, go to www.ncpork.org or call 919-781-0361.

The Equestrian Exchange Tack Consignment Spring Sale will be March 26-29 at the Holshouser Building at the State Fairgrounds in Raleigh. This is the state's largest equine and tack spring sale, where visitors can buy and consign anything related to the equestrian sport, including tack, driving equipment, show clothing, training needs for all disciplines of riding, barn supplies, carts, other animal items and horse trailers. Bar code tagging on our web site allows consignors to price items and view sales from home. Consignors should drop off tagged items from 11 a.m. to 9 p.m. March 24 and 10 a.m. to 2 p.m. March 25. A premier shopping night open to the public is March 25 from 5 to 10 p.m. Cost is \$10 cash and free for ages 12 and under. Open shopping with free admission is March 27 and 28 from 10 a.m. -10 p.m., and March 29 from 11 a.m. to 7 p.m. Some items may be discounted up to a half-off on the final day. Consignors should pick up unsold items March 31 from 3 to 8 p.m., April 1 from 11 a.m. to 3 p.m. or items can be donated to N.C. non-profit equestrian organizations. Consignors earn 70 percent, except for trailers, which are sold with a representation fee. Volunteers needed and can shop before consignors. Consignors can shop before public. Cash and credit cards accepted. For more information, go to www.EquestrianExchange.com or contact Lynn Beeson at 336-362-6248 or Tanya Wright at 540-977-1950.

The Macon County Poultry Club meets on the third Tuesday of each month to discuss matters relating to raising poultry. Meetings are open to the public and to all ages. For more information, contact the Macon County office of the N.C. Cooperative Extension at 818-349-2046.

As a way to help farmers and agricultural workers stay safe at work, the N.C. Department of Labor offers safety videos on a variety of topics through its YouTube channel. Video topics include: preventing green tobacco sickness, hazard communication, tobacco harvester safety, heat stress, migrant housing requirements, forklift safety, and information about the NCDOL's Gold Star Growers program. The videos are in English and Spanish to increase understanding of safety hazards and preventing accidents. To learn more about the NCDOL and the Agricultural Safety and Health Bureau, go to www.nclabor.com or call 1-800-NC-LABOR (800-625-2267). NCDOL is also on Facebook and Twitter (@NCDOL).

Beekeepers with bees for rent and growers interested in bee pollination services can post their information on the BeeLinked website at www.ncagr.com/beelinked. The site is hosted by the N.C. Department of Agriculture and Consumer Services and the N.C. State University Apiculture Program. Anyone interested in listing their information can do so by filling out an online Submit Your Ad form on the BeeLinked page or by contacting NCDA&CS at 919-233-8214 or by email at NCHoneybee@ncagr.gov or call NCSU at 919-515-1660. The NCDA&CS Plant Industry Division regulates the movement of agricultural or related items capable of spreading harmful insects, diseases, and other pests. Beekeepers participating in this program will be required to comply with all honey and bee industry regulations.

The N.C. Ag Finance Authority provides credit to agriculture in areas where financing is not available at reasonable rates and terms. The agency originates, services and finances farm loans, rural business loans, disaster loans and cotton gin loans. It also offers tax-exempt ag development bonds for agribusiness processing, ag-related manufacturing or ag waste disposal. For more about Ag Finance Authority programs or to request a loan application, call 919-790-3949 or email at RequestLoanInfo@ncagr.gov.

Look for this logo and



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Classified Ads

Advertising in the Ag Review

Ads are run free for N.C. residents & can be submitted by mail to 1001 Mail Service Center, Raleigh NC 27699-1001; online at www.AgReview.org; or by fax to 919-733-5047. Ads *must* include name, address including zip code, phone number including area code, and *price or price range for every item* being sold.

Deadline for each issue is noon on the first working day of the month prior to publication. Limit is 30 words, editor reserves right to edit or reject ads. Limit 2 ads/person in different categories.

FARM EQUIPMENT

1910 grist mill, 2 shaker screens, \$725; JD 120 corn picker, sheltered, GC, \$750. W. Long, Mebane 336-376-6603.

NH 847 baler, GC, new chains, new bearings, field ready, sheltered, \$1,400. J.M. Long, Mebane 336-376-6603.

Bush Hog tiller, 3 pt, 62 in. wide, LNC, \$1,000. Doug Fulbright, Casar 704-538-7321.

1974 Farmall 140, turning plow, 4 new tires, driveway tool, tillage tool, bush hog, cults, other equip, \$6,800. James Nuckles, High Point 336-668-0141.

NH 57 hay rake, GC, \$1,250. Buddy Bowman, Mt. Airy 336-789-9344.

Krone 125 hay baler, \$3,950; Fort 2050 disc mower, \$3,750; White 2-60 tractor, \$2,750; other equip. Charles Wood, Franklinville 336-629-6572.

Old IH steel wheel drill w/seed boxes, shed kept, \$450; pull drag harrow, \$175. N. Lee, Advance 336-998-8922, nights.

Magnetos, different makes & types, some w/gears, \$75 & up. Bill Payne, Madison 336-707-8840, 6-8 p.m.

Hay spear for Bush Hog brand front end loader, \$250. Robert Jobe, Greensboro 336-697-2302.

Chandler spreader, 14 ft., mounted on 1965 10-ton Ford truck, 5,700 mi on rebuilt eng, 2-spd axle, RG, \$5,000. Danny Shaw, Denton 336-302-0672.

Tongue slip clutch pto shaft for JD 337 baler, fits other models, \$600; JD H tractors, 2 for parts, 1 complete, \$700; other equip. David Whisnant, Shelby 704-692-7150.

JD 375 baler, VGC, \$5,000; NH 163 tedder, VGC, \$1,500; MF 135 diesel, ps, VGC, \$4,500. Garner Jarrell, Mt. Airy 336-648-4288.

Wood splitter, new valve, new pump, new eng, \$495. Carey Davis, Peachland 704-624-6269.

1962 Ford 4000 Select-O-Speed, VGC, garage kept, \$5,600. Dan Thacker, Mebane 336-263-3683.

FARM EQUIPMENT

BBI litter/lime spreader, 18 ft., all hyd, 9-ton capacity, electric drag stop, \$17,000. Kenneth Mills, Marshville 704-242-0769.

Super A turning plow, fast hitch, \$150; super A or Cub scrape blade, fast hitch, \$125. Larry Adams, Yadkinville 336-671-1119.

AC/ED/40 tractors, \$1,600; U & UC, restore/parts, \$500-\$2,000; B & C, restore/parts, \$250-\$400; pr of 8.5-24 tires, \$200. Timothy Mabe, Troy 910-572-3539.

1947 Farmall Cub, \$2,500; Woods belly mower, \$800; Cole planter, \$250; turn plow, \$100; trailer, \$200. Harvey Poole, Cornelius 704-241-1664.

Ford 5000 tractor, diesel eng, paint & sheet metal GC, \$8,000. Carl Buie, Lexington 336-239-7344.

JD 5420, 2wd, 65 hp, new tires, rops, canopy, dual outlets, 2,300 hrs., \$15,500; bale accumulator & grapple, \$4,500. Evan Plyler, Matthews 704-291-0119.

Leader tractor, good tires, RG, \$1,900. Forest Oakley, Oxford 919-693-4367.

Super M, wide front end, \$3,200; super A, 72 in., \$2,700; NH 1-row silage cutter, \$4,500. Tony Hedrick, Lexington 336-843-8172.

NH 451 sickle mower, 7 ft. cut, GC, always sheltered, \$1,400. Tommy Fuller, Mt. Holly 704-827-1770.

JD 4630, \$17,500; JD 4230, \$8,200; JD-A, \$3,000; JD 60 series, \$3,500; Ford 3000 tractor, \$4,500; Itnl super C, \$2,500. Joe Mills, Marshville 704-242-4086.

Farmall Cub tractor & trailer, both need work, good potential, \$1,900. Robert Harden, High Point 336-870-0968.

Ford CM224 lawn mower, 60 in. deck, hydro 4wd, 22 hp, newly rebuilt 3 cyl diesel eng, \$4,000. Matthew Locklear, Pembroke 910-736-5818.

1984 Case Itnl 485, needs starter, other repairs, \$2,800. Craig Cline, Concord 704-786-4488.

Grove silage wagon, self-unloading, \$1,100; MF 3-16 flat bottom plow, \$500; liquid feed tank, \$75. Buck Hart, Statesville 704-880-5439.

FARM EQUIPMENT

MF 231 tractor, 38 hp, 453 hrs., \$6,995; Land Pride finish mower, 5 ft., \$1,000; 6 ft. box blade, \$400; other equip. David Creason, Ashboro 336-736-0771.

JD 5420, \$28,000; VR 820 v-rake, \$4,700; NH 1409 disc bine, \$16,500; Fransgard V3000 winch, \$3,000; other items. Don Harrison, Lenoir 828-313-7511.

Aerator, for lawn or garden, \$200. G. Stowe, Graham 336-675-0466.

Hardee hd rotary cutter, 5 ft., lrg gear box, \$800. Jimmy Furr, Stanfield 704-888-0213.

2000 Claas disco mower cond, EC, shed kept, \$5,500; NH 630 baler, 4x5 rnd, shed kept, \$3,500. Ron Scally, Charlotte 704-622-0688.

AC 72 combine, pull type, GC, \$1,500; auger feed grain tank, pto drive, GC, \$1,500; buy both for \$2,800. David Elliott, Kernersville 336-416-4517.

Subsoiler, 28 in., 3 pt, VGC, \$150; potato plow, 14 in. wide, 3 pt, VGC, \$100. Walter Connor, Salisbury 704-630-0581.

Ditch witch, GC, w/pile & trench, \$3,500. Larry Kendrick, Clemmons 336-500-3304.

Minn. Moline BG tractor, 3 pt, \$2,000; Long 445 diesel, 3 pt, new tires, \$4,000. Frank McKeithan, Bolivia 910-253-5913, after 5 p.m.

Super A, 1 pt, new tires, cult, blade, plow, disc, corn platter, \$4,000. Gary Sizemore, Liberty 336-263-6079.

AC D10 tractor, new rear tires & battery, inclds cults & fert hopper, \$2,000. Dale Pardue, Hamptonville 336-468-2038.

MF 82 plow, 4-bottom, 16 in., GC, \$625; grain box & trailer, GC, \$300; tobacco stringer, \$150. J. Lloyd Mabe, Danbury 336-703-8232.

JD H tractor, parade quality, new rubber, \$4,600; MH Pacer, \$1,600; JD M plow, \$175. Glenn Lowery, Clemmons 336-408-6344.

Galaxy tractor tire, 12-4-24, on 11 rim, 1 in. tread, VGC, \$120. J.R. Deaton, Gibsonville 336-697-8263.

1936 JDW power unit, needs timing, \$5,000; JD 1-horse rake, \$600. Don Cameron, Sanford 919-499-7012.

1958 Farmall super M, new radiator & battery, almost new tires, excellent mechanical cond, \$2,500. Wilbur Ward, Clarkton 910-840-1868 or 647-3341.

JD 830 tractor, \$3,000; JD sickle mower, \$300; JD 410 rnd baler, \$400; JD 336 sq baler, \$500; JD roll bar rake, \$350. Wayne Johnson, Cameron 919-721-8190.

AC 7000, \$10,000; AC 180, EC, new tires, wghts, \$6,000; NH 848 rnd baler, EC, net wrap, \$5,000. Troy Watts, Taylorsville 828-302-8596.

BBI fert/lime spreader, pto, 2-wheel, carbon-coated chain, 5-ton, LNC, shed kept, \$9,500. Bill Lea, Carthage 910-420-8814.

Fiberglass top, fits rops 37 ½ in. across, \$250. Jerrold Bowman, Mt. Airy 336-789-3250.

FARM EQUIPMENT

Hay handler, w/front end loader & bobcat attach, holds 10 bales, LN, \$4,500. John Everhart, Thomasville 336-687-1412.

Kubota L175 tractor, 400 hrs., w/generator, bush hog, belly mower, seed spreader, scrape blade, spike harrow, \$5,000. John Burton, Reidsville 336-349-6910.

Hobbs peanut elevator, 50 ft., \$2,500; Palk land plaster/fert dist, \$400; Gallion hd rd grader, \$500. Farnell Shingleton, Hampstead 910-899-7971.

Hay handler, field ready, attaches to trailer & picks up hay from field, \$1,000. John Francis, Waynesville 828-400-1123.

Massey 35 w/equip, \$3,500; AC D14 w/equip, tractor needs work, \$3,000; JD corn snapper, 1-row, GC, \$500. Wade Hutchens, East Bend 336-466-0730.

Hustler chainless 2000 bale feeder, new, series 3, \$9,000. Ronald Hammonds, Lumberton 910-734-2991.

1975 Itnl 140, cult/fert dist, 2-bottom plow, 90% rubber, new steering wheel, many new parts, \$5,300 obo. David Walker, Reidsville 336-951-2170.

Cole multi-flex corn planter & fert, 3 pt, \$650; MF doub plow, 14 in., 3 pt, \$350; Ford cutaway bog, 3 pt, \$350. R. Wilson, Kernersville 336-970-1336.

JD subsoiler, 3-shank, \$425; offset 3 pt disc, \$300; 2-bottom plows, \$250 ea; 3-bottom plows, \$350 ea. James Isley, Julian 336-263-1958.

NH 56 hay rake, GC, \$700; 18-disc offset harrow, trailer type, GC, \$850. D.J. Sears, Apex 919-218-1820.

Case IH 8420 rnd hay baler, \$3,600; Long tedder hay rake, 10 ft., \$750. Jimmy Frye, Carthage 910-947-5910.

Bush Hog 3450 QT loader for 70 hp tractor or bigger, \$3,000 obo; 520-H Wheel Horse mower & deck, \$350 obo. John Lamb, Randleman 336-498-2512.

JD 1010, gas, running when parked 2 yrs ago, \$1,500. Robert Winstead, Burgaw 910-259-0001.

(2) IH 140 w/cults; (1) IH 100, restored; (1) IH super A w/cult; other 1 pt equip, \$2,000-\$3,500. Michael Nardo, Jackson Springs 910-281-3522.

New manifold w/gasket, fits Farmall ABC, super A & C; also fits 100 & 200, \$110. John Huskey, Hillsborough 919-644-0136.

MF limited mower, model 2802668, 7 ft. cut, mows flat to straight up, \$2,000. Ernest Holmes, Snow Camp 336-376-6533.

Case 970, cab, rear dual wheels, dual remote control, \$6,500. R.L. Duncan, Pleasant Garden 336-674-5973.

Itnl TD20-200 bulldozer, straight drive, cable blade, good eng & trans, needs clutch, \$3,000. Paul Bailey, Roxboro 336-599-5216.

JD 5300 tractor, 4wd, \$5,000. Dan Stewart, Carthage 910-986-9829.

FARM EQUIPMENT

Pine straw rake, \$300; cult & shields, 3 pt, LN, \$150; draw bar, LN, \$30. Bruce Myers, Lexington 336-787-4902.

WD-45, \$2,500; D-17, \$3,500; hole digger, \$500; 2-16 plow, \$400; 10 ft. drag harrow, \$300; other equip. Pete Hallyburton, Cleveland 704-213-4537.

NH 565 baler, \$5,000; NH rake, \$1,500; tedder, \$1,500. Dennis Lanier, Lexington 336-764-2439.

JD 4-disc plow, built for JD 720, \$700; JD hit & miss eng, 1 ½ hp, \$1,200. Gerald Phillips, Siler City 919-742-2368.

(2) 20-disc harrows, pull type, \$200 ea. Andrew Brown, Rockwell 704-279-2791.

JD 1209 mower/cond, GC, 90% rebuilt, \$3,100; Lely tedder/rake/windrower, 10 ft., 100% rebuilt, EC, \$1,400. E.W. Gann, Mocksville 704-985-6642.

JD 3230E, 119 hrs., w/5x7 ½ bush hog, \$17,800; Farmall IH grain drill, 8 ft., refurbished, \$2,500. Jerry Rillo, Candor 910-571-2181.

F2 gleaner, 13 ft. grain head, 4-row corn head, \$6,000; F gleaner, 13 ft. head, \$2,000; AC sod planter, \$1,000. Jerry Beatty, Sherrills Ford 828-478-2768.

Itnl 385 tractor, 46 hp, ps, no rear hyd remote, \$4,500 nego. Rickey Jones, Lumberton 910-608-3137 or 827-9971.

NH 648 rnd baler, net & twine wrap, bale command, new belts last 3 yrs, \$11,900. Mark Tevepauh, Davidson 704-292-5596.

Ford NH 451 sickle mower, \$1,100; NH 268 sq baler, \$1,100; NH 68 baler for parts, \$250. Steve Beckner, Mebane 919-563-5666.

Ford 3-bottom plow, \$375; plant bed roller, \$75; Powell 1-row tobacco planter, \$300; 60-gal spray, 3 pt, boom, \$75. Alex Vernon, Stoneville 336-207-5730.

MF 35 industrial tractor, gas, hd front axle, ps, 3 pt, factory front loader, rnd bale spear, VGC, \$3,900 obo. Larry York, Staley 336-824-2077.

Tonutti tedder, model GT500, 4-basket, hyd fold, \$2,200. Travis Graves, Burlington 336-266-0460.

JD flex planter, 2-row, gandy boxes mounted on tool bar, various corn/bean plates, operator manual, \$1,575. Larry Swanda, Mt. Olive 919-252-8078.

JD 6405 tractor w/loader, \$29,500; Vermeer v-type hay rake, \$2,650. H.O. Davis, Elon 336-260-7606.

1979 AC 185 diesel, GC, front wghts, good tires, low hrs., \$8,000. Fred Greeson, Julian 336-404-5896.

AC corn planter w/fert dist, 2-row, GC, 13 sets of plates, \$800. Neal Parnell, Kernersville 336-972-2248.

Farmall Cub, w/full set of cults, turning plow, 2 new tires, more, \$2,300. Harold Dagenhart, Statesville 704-902-8675.

FARM EQUIPMENT

KMC 1-strip till, 4-row, \$4,000; KMC 4-row cult, \$800; Reddick 4-row sprayer w/150 gal tank, \$1,500; other equip. Lance Bass, Spring Hope 252-478-3169.

Gehl 1070 haybine, 7 ft., \$1,600; United Farm Tool no-till drill, \$6,000; Itnl 7 ft. sickle mower, 3 pt, \$1,600; all shed kept. John Graves, Mocksville 336-749-6570.

Kubota B6100, front blade, 3 pt, pto, 4wd, \$3,000; (3) Gravely 2-wheel tractors, some equip, \$100 ea. J.B. Wilson, Mill Spring 828-755-1188.

Water filter system, waters 10 ac or more at a time, 4 in. inlet, 4 in. outlet, \$8,500. Skipper Russell, Waynesville 828-734-5500.

Itnl chisel plow, 11-shank, \$1,000; NH disc mower, \$8,500; 1 rear tractor tire, 7-5-20, \$100; 2 rear tractor tires, 16-9-26, \$600; Mike Clapp, Whitsett 336-516-6250.

Lilliston rolling cult, 4-row, LN center disc, spider gangs turn freely, sheltered, \$500. Curtis Fountain, Chinquapin 910-324-6103.

Greenscape 600 seeder, seed drop width 5 ft, requires minimum 30 hp tractor to pull, \$4,750. Charles Gupton, Louisburg 919-971-8446.

Chain elevators for silage/grain, (1) 24x12, 2 hp, 220v, \$250 nego; (1) 22x10, 1 hp, 110v, \$350 nego. Wilbur Newlin, Mebane 336-739-3618.

Straw chopper for 1620 combine, also fits 1420, \$500 obo; Itnl 844 corn head, 4-row, GC, sheltered, \$800 obo. Tim Wilson, Bailey 252-292-2545.

Flat belt pulleys, 1 fits Ford 8N tractor; 1 fits AC WD 45 & sm WD tractors, \$100 ea. Dewey Sawyer, Swan Quarter 252-944-1826.

Tractor hay fork, hd, 3 pt, LN, \$95; subsoiler, 3 pt, LN, \$95; tractor dirt pan, 3 pt, GC, \$50. Robert Davis, Kernersville 336-414-2977.

JD 700 rake, \$4,000; NH 256, NH 260 rakes, NH 252 hitch, \$4,000, will separate; MF 848 loader, \$2,500. Frankie Shoffner, Liberty 336-339-5961.

NH feeder/grinder/mixer, used seldom, hammers never rotated, GC, sheltered, \$4,000 obo. Barry McSwain, Norwood 704-985-3751.

Farm wagon, 7x14, GC, wood bed, 3 ½ ft. height, steel frame, \$550. Clater Killebrew, Tarboro 252-442-4307.

(2) Farmall super A w/ full cults; (1) super A, no cult; (1) 140, \$2,500-\$5,000. Thomas Arnette, Sanford 919-498-1543.

1997 JD 6220 tractor, 2wd, w/loader & bucket, 3,922 hrs., buddy seat, shed kept, \$32,000. Johnny Wilson, Granite Falls 828-312-4235.

MF 1359 discbine mower, mowed less than 100 ac, LNC, kept under shed, \$15,000. Ronnie Surratt, Denton 336-250-8190.

FARM EQUIPMENT

Avery cultipacker, doub roller, 7 ft. wide, GC, \$850. Rick Parnell, Winston Salem 336-408-1743.

JD M w/cult, GC, \$2,250; set of cults for Farmall 140/ super A, \$400. Jerry Yountz, Clemmons 336-764-0748.

NH 1465 haybine, GC, \$5,500; NH 256 hay rake, GC, \$1,500. Kenny Brotherton, Mooresville 704-450-6465.

Hay tedder, 9 ft., 3 pt, pto powered, \$550. Charles Hale, Marshville 704-221-2462.



Equipment Wanted

Bagger for a Gehl mix-all feed mill, 65MX-120MX. Kirby Frank, Denton 336-905-0257.

Portable grain auger, 20 ft., 120v, must be ready to use. Norris McConnell, Mt. Ulla 704-431-9321.

Ford 2000 or 3000 tractor, running or in need of repair. David Arron, Snow Camp 336-212-5943 or 512-9557.

Tractor tiller, 6 ft. or 7 ft., 3 pt hitch. Ed Burns, Burlington 336-222-1961.

Itnl UD-16 power unit for parts. Tim Thompson, Albemarle 704-201-6344.

Foam marker for a tractor spray or applicator. Ralph Moorefield, Harmony 704-546-5771.

Metal tracks for Bobcat 863 skid loader, Loegering brand, GC. Charles O'Bryant III, Reidsville 336-908-0276.

JD 430 bulldozer. H. Roberts, Lenoir 828-758-8160.

Ford 309 corn planter plates & corn, beans, sorghum & filler plates; Ford 309 corn planters for parts. Charles Chamelin, Kernersville 336-769-4418.

Woods batwing mower for parts. Paul Bailey, Roxboro 336-599-5216.

Sm manure spreader to pull w/ATV or garden tractor, must be GC, ready to use. Richard Broker, Robbins 910-464-5244.

Disc harrow for a compact tractor, 4 or 5 ft. Tim Gentle, Mt. Pleasant 704-224-5012.



Farmland For Sale

Land for sale must consist of at least 3 acres and be used for agricultural purposes, i.e. cultivation, raising livestock and/or other farm commodities.

Advertisers must indicate use of land.

47 ac +/- Montgomery co, mostly open, deer & turkey hunting, sm creek running through it, \$5,000/ac. Barry McSwain, Norwood 704-985-3751.

8 ac & 15 ac Orange co, private access gravel drive, 8 ac lot is wooded, 15 ac lot wooded w/2 pastures, \$80,000-\$150,000. Ann Moss Joyner, Mebane 919-619-7978.

12.92 ac Iredell co, rd frontage, creek, woods, tillable ac, \$156,000. Sarah Perry, Hamptonville 704-929-8719.

FARMLAND

46.85 ac Anson co, 60% in 11 y/o pines, deer, turkey & hog hunting, great investment, \$89,500. Carl Lee, Rockingham 910-995-7886.

20 ac +/- pasture, woods & creek; home site has water, septic, electric, \$130,000. Jim Duncan, Linwood 704-202-8143.

100+ ac Rowan co, barn & shed, clear & timbered land, \$475,000. Rhod Lowe, Salisbury 704-636-3408 or 202-9605.

15 ac for lease, river bottom land along Haw river, suitable for organic crops or pasture, \$125/ac per yr. Norbert Hector, Browns Summit 919-368-4411.

53 ac Bladen co, hwy 87 E Elizabethtown, rd frontage, high elevation; can divide sm acreage, \$250,000. Thomas Andrews, Lumberton 910-827-3563.

3.84 ac Hertford co, next to Chowan river, pasture, hay growing, barn, stock pond, \$185,000 nego. Ben Parker, Harrellsville 252-287-3501.

112 ac Yadkin co, 81 ac wooded, 31 ac farmland, streams, paved rd frontage, \$448,000. Jack Lunsford, Burlington 336-675-3071.

31.42 ac Cherokee co, rd frontage, branch water, cleared, level, fenced, cornfields, pastures, \$198,500. Joan Neill, Hickory 828-324-6774.

62 ac Caswell co, 1 mi rd frontage, excel deer & turkey hunting, \$140,000. Earl Smith, Mebane 336-694-3147.



Farmland Wanted

Land to lease for deer & turkey hunting, Rockingham, Caswell, Stokes, Guilford &/or surrounding cos. Aaron Stutts, High Point 336-259-5286.

Land to lease for trophy bow hunting only, w/in 1 hr. of Raleigh; lrg, sm or urban tracts, ref avail. Raymond Mann, Willow Spring 919-633-9786.



Farm Labor For Sale

Vert & horz mowing, reclaim property lines, ponds, dams, etc., no job too sm, any location, \$65/hr. Roger McKenzie, Jackson Springs 910-528-2293.

Ai breeding, all breeds, no farm too sm, \$10 & up. James Martin, Siler City 919-904-2599, martinbreeders@yahoo.com.

Energizer fence repair, afw, zareba, tsc, ssc, parmak, \$15. Bobby Nichols, N. Wilkesboro 336-927-2850.



Farm Labor Wanted

Aermotor windmill repair, 8 ft. mill, 40 ft. tower, needs seal at end of plunger changed; located Frog Pond, NC. Sandra Scally, Charlotte 704-622-0688.



Bees, Supplies & Services For Sale

NOTICE

N.C. law requires a permit to sell honey bees in the state. A permit is not required for: The sale of less than 10 bee hives in a calendar year, a one-time going-out-of-business sale of less than 50 hives, or the renting of bees for pollination purposes or their movement to gather honey.

Contact Don Hopkins, state apiarist, NCDA&CS, 1060 Mail Service Center, Raleigh, NC 27699-1001 for information.

Taking orders for strong 5-frame nucs, Carolina raised queen, p/u early April in Concord, \$175; \$100 deposit. Bryan Fisher, Kannapolis 980-521-8642.

2020 honeybee pkgs w/ marked queen, 3 lbs., \$125-\$135; also, hive kits, beekeeping equip & supplies; pre-order. Guy Collins, Bailey 252-289-2826.

5-frame nucs in waxed cardboard nuc box, avail late March-early April, w/overwintered Italian, Carniolan or Mite Mauler queen, \$160. Sam Bolick, Concord 704-795-3900.

3 lb. pkgs avail March, \$115; 5-frame nucs avail April, \$150; local marked queens throughout season, \$30. Garry Whitley, Albemarle 704-982-0698.

2020 bee pkg, 3 lbs., w/ marked or unmarked queen, avail 3/29; extra queens & supplies avail, deposit required, \$115. James Fogleman, Pittsboro 919-542-3157.

3 lb. pkg Italian bees, p/u 3/28, 4/10, 4/15, 5/8; w/ mated queen, \$120; marked queen, \$125; 5-frame nucs avail 4/15, \$170. John Pledger, Trinity 336-906-0764.

Division board feeders, new/used, \$5; Jester nuc boxes, \$8; used, stained 10-frame hive bodies, spacers for 9, \$10. Brett Callaway, Fletcher 828-696-6629.

Italian honeybee pkgs, 3 lbs., avail 4/1, \$115; 5-frame nucs, avail late April-early May, \$165. Preston Brown, Zebulon 919-404-1441.

3 lb. pkgs 4/1, \$105; 5-frame nucs 4/15, \$155; 5-frame hives w/bees, \$210; 8-frame hive 5/1, \$290; other supplies. Edward Whitley Jr., New London 704-791-8745.

5-frame nucs avail end of March/mid-April, weather permitting; no frame exchange, gentle Italian bees, \$150. Doug Medlin, Marshville 704-774-5355.

2020 honeybee pkg, avail 3/22, 3 lbs., laying queen; extra queens avail, deposit required, \$115. Timothy Frye, Liberty 336-549-7358.

All season nucs, \$185; overwintered nucs, \$235; 3 lb. pkgs, \$150; queens, \$35. Wade Penny, Beulaville 910-290-4186.

BEES

Stainless steel capping tank, 21x41x16 deep, 34 in. tall, EC, \$250. George Miller, Nashville 919-495-3345.



Hay & Grain For Sale

Rye straw, \$4/bale. Martin Moss, Concord 704-782-4379.

Fescue/orchard grass, 2019 spring cut, sq bales, no rain, barn kept, \$4/ea; rnd bales fescue, not horse quality, no rain, shed kept, \$23 ea. Scott Davis, Denton 336-460-0831.

Orchard grass & fescue hay, in field, \$5.50; in barn, \$6. J. Lloyd Mabe, Danbury 336-703-8232.

Horse quality hay, deliv avail, \$50/rl. H.O. Davis, Elon 336-260-7606.

Fescue/rye grass mix, 2019 cutting, sq bales, no rain, in barn, \$4.25/bale. Todd Brown, Ramseur 336-318-5131.



Horses & Supplies For Sale

PLEASE NOTE: All equine 6 mos. or older must have a current negative Coggins test. Advertisers must supply the accession number of test, the name of lab doing the test, the date of test and results for each equine advertised.

9 saddle racks, new, wall mount, 7 red, 2 black, must take all, \$90. Tommie Cato, New London 336-857-2935.

4-stall horse barn for rent in Mocksville, on 4 ac, covered hay & trailer storage, \$500/mo. Lori Smilowitz, Mocksville 540-421-2991.

Jerusalem donkeys, 1 male, 1 female, likes people, \$100 for both. George Smith, Thomasville 336-886-5461.

Wintec saddle, Bates 363639, 46 cm, 18 in., new gullet system, used twice, \$400. James Brown, Asheville 828-254-7282.

Coal forge w/tongs & hood; 1-horse buggy, fair cond, \$175-\$400. Ricky Oliver, Burlington 336-214-1803.

Industrial blacksmith forge, w/12 tongs; (5) 55-gal barrels of coke fuel, \$500. Gerald Phillips, Siler City 919-742-2368.

Surrey, 1 or 2-horse, completely restored, 1 front seat, 2 back seats, new top, EC, \$2,500. Jim Winstead, Leasburg 336-599-9974.



Livestock For Sale

Charolais bull, 3 y/o, proven easy calver, very gentle, 1,850 lbs., \$1,950. Eli Lopez, Lexington 336-472-2395.

5 Angus yearling bulls, GC, top 2% of Angus for grass conversion, \$1,800. Jonathan Brubaker, Asheboro 336-629-5128.

LIVESTOCK

Hereford bull, full blood, approx 750 lbs., \$1,000. Ricky Millsaps, Statesville 704-592-2411.

Reg Blk Angus bulls, 12-16 m/o, Sitz Upward 307R bloodline, \$1,600-\$1,700. Greg Collins, Westfield 336-351-4734.

Polled Hereford bulls, 9-14 m/o, very gentle, reg bloodline, \$800-\$1,000. Nancy Barlow, State Road 336-874-2166.

Reg Angus bull, dob 3/4/18, ai Quaker Hill Rampage 0A36, \$1,900. Jake Cornelison, Mocksville 336-998-3309.

Poland China boar, approx 375 lbs; Landrace sow, approx 300 lbs., \$125 ea obo. Tom Preslar, Marshville 704-219-0913.

Reg Angus bulls, weaned to breeding age, great epd's Cowboy Up & Freightliner bloodlines, \$800 & up. Danny Dennis, Mt. Gilead 910-571-1114.

Holstein/Angus crossbred heifers, approx 500 lbs., \$1.50/lb. Pratt Karriker, Mooresville 704-640-2538.

Nigerian dwarf goat kids, adga, polled, blue eyes, moon spots possible, great bloodlines, \$150-\$350. Tracy Hardin, Forest City 828-248-2125.

Polled Hereford bull, 4 y/o, \$2,500. Bobby McColum, Polkton 704-294-1406.

Reg bulls, SimAngus, purebred Angus & Simmental, 15 m/o, bse tested, ai sires, \$2,000 & up. Todd Salzwedel, Robbins 910-585-1348.

Santa Gertrudis cattle, reg, calves, \$500 & up; replacement bulls, \$1,000 & up; cow/calf pairs, \$1,500 & up. Charles O'Bryant III, Reidsville 336-908-0276.

Charolais heifers, 7 mos & up, purebred, polled, gentle, out of reg sires, \$850 & up. Johnny Harrison, Salisbury 704-639-0867.

Reg Blk Angus bulls, 16-18 m/o, performance/fert tested, ai sires Patriot, Absolute, All In, deliv avail, \$2,000 & up. Henry Craven, Seagrove 336-257-0112.

Blk Angus herd bulls, steers & heifers, Traveler, GT Maximum & 727 Executive bloodlines, \$700 & up. Tim Moss, Graham 336-376-3773 btwn 5-11 p.m.

SimAngus bull, 17 m/o, ai sire Rasin Cain, passed soundness test, \$2,000. Aaron Snow, Hamptonville 336-244-2926.

Katahdin ewes & lambs, full blood, not reg; yearling ewes, ewes w/lambs by side, ewes & lambs after weaning, \$100 & up. Steve Modlin, Mill Spring 828-674-3502.

SimAngus & Hereford Angus bred heifers, vaccs, ai bred, preg checked, will begin calving Sept, \$1,500 & up. Travis Graves, Burlington 336-266-0460.

Reg Angus bull, 18 m/o, sire Absolute Son, reg #19497855, bse tested, \$2,000. Jamie Elliott, Denton 336-302-0165.

LIVESTOCK

Reg Hereford bull, 6 m/o, polled, dark red, lrg frame, NJW Durango, Ribeye, Masterpiece bloodlines, \$1,200. Brandon Baker, Asheboro 336-963-2835.

Texas Longhorn steers, \$250; reg cows & heifers, \$400-\$1,200; 7 y/o grulla & white bull, \$1,200. Charlie Bolton, Pittsboro 919-548-2518.

Boar bucklings, dob 12/18; bottle baby boar kids, \$120. Robert Fleming, Oxford 919-810-5847.

Reg Angus bulls, 2 y/o; bred cows, 3-in-1 pairs, select group of heifers; excel quality, \$1,800-\$3,500. Terry McPherson, Graham 919-280-2467.



Livestock Wanted

Unwanted farm animals, no horses, dogs or cats; free only. Thomas Arnette, Sanford 919-498-1543.



Poultry & Supplies For Sale

6,000 started pullets, vaccs, debeaked, \$8 & up. E.D. Snider, Staley 336-708-2998.

Partridge Wyandotte bantams, show type, John Philpot & Chris Hall bloodline, cockerels & hens, \$25 ea. Larry Matthews, Warsaw 910-293-7840.

Cochin, Easter egger bantams, \$10 ea. Roger Melville, Charlotte 980-355-5907.

Quail: California, silver California, blue scales, 8 varieties of bobwhites, partridge, chukar, Hungarians, \$3 & up. Jimmy Furr, Stanfield 704-888-0213.

Pearl guineas, adult male or female, \$12 ea. Alvin Searcy, Marion 828-738-8533.

Lewis poultry house keeper, model #2, w/attach, GC, \$1,600. Rita Kindley, Lexington 336-472-2526 btwn 5-8 p.m.

(20) 48 in. fans, \$150 ea; Plasjon cup water lines, feed lines, \$1,000 ea obo. Jennifer Price, Concord 980-521-6485.

Ruddy shelducks, \$100 ea; Australian blk swans, \$250 & up; Cape Barren geese, \$400 ea. Jim Simpson, Indian Trail 704-361-6497.

(3) Burch table egg coolers, 13000-20TE, GC, maintains temp btwn 42-45, used 2 flocks, \$2,500 ea, \$6,500 for all 3. Joby Cabe, State Road 336-366-0459.



Seeds & Plants For Sale

PLEASE NOTE: Individuals or businesses offering nursery stock for sale in North Carolina are required to obtain either a nursery or nursery dealer license. For more information, contact the NCDA&CS Plant Industry Division at 800-206-9333 or 919-707-3730.

Sunflower seeds, 12-14 lb. flower, 15-18 in. diameter, SASE & \$3/25 seeds; \$5/50 seeds. N. Smoot, 6227 Welborn Rd, Trinity, NC 27370.

SEEDS & PLANTS

Cockscomb seeds, huge blossom head, crimson color, 18 in. stalk, about 200 seeds, SASE & \$3 cash. Barry Cox, 6225 Welborn Rd, Trinity, NC 27370.

Sweet potato pumpkin seeds, growing & cooking instr incld, 15 seeds, SASE & \$3. Bill Blackburn, 325 Timberbrook Trl, State Road, NC 28676, 336-366-2949.

Muscadine & scuppernong vines, 4-6 ft., potted, healthy, planting/trimming instr incld, \$15 ea. Bob Whitaker, Mocksville 336-469-4822, no texts.

Lrg sunflower seeds, \$5/50 seeds; pumpkin seeds, \$2/25 seeds. Landon Rice, PO Box 27, Connelly Springs, NC 28612, 828-893-0838.

Bamboo poles or shoots, poles up to 40 ft. high & 3 in. diameter, \$7 ea. Norbert Hector, Browns Summit 919-368-4411.

Loofah sponge seeds & heirloom marigold seeds, SASE & \$5/45 seeds ea. Billie Riley, 451 Airport Rd, Gastonia, NC 28056, 828-569-7333.

Little white cucumber seeds, SASE & \$1/tsp cash. Jim Bostian, 6235 River Bend Rd, Claremont, NC 28610, 828-459-9276.

Blueberry plants, early, mid & late season, many varieties, discount for lrg orders, call to reserve, \$3.50-\$15 ea. Michael Crippen, Garland 910-529-1469.

Tuberose bulbs, single Mexican, 100+ bulbs/box, growing instr incld; sm quantities, shipping avail, \$50. Cathy Reynolds, Salisbury 980-234-2515.



Seeds & Plants Wanted

Painted zinnia seeds, painted only. Jerome Nixon, Greensboro 336-674-6272.

Small Animals For Sale

Tennessee Redback rabbits, ground started, buy 10, get 1 free, \$10 ea. Mark Hinson, Goldsboro 919-734-7800.



Supplies For Sale

Steel posts, 4x4, 12-16 ft., \$1/ft.; I-beams, 18-20 ft., \$2/ft. Douglas Fulbright, Casar 704-538-7321.

Fuel tanks, 150 & 250 gal, snap-on tool boxes, stick welder, scythe mower, \$100-\$650. N. Lee, Advance 336-998-8922, nights.

Caprari irrig pump, 4x4, pto, used 5 hrs., \$3,000 firm. Hal Gurley, Wake Forest 919-793-3791.

Used canning jars, 1/2 gal reg mouth, \$1 ea; reg mouth quart size, \$5/doz. Jerry Houston, Providence 336-388-5089.

Champion pecan cracking machine, 1/2 hp motor, 110v, sheltered, GC, \$2,400. Cheryl Atkins, Pikeville 919-273-8653.

FARM SUPPLIES

Metal burning barrels, solid or open, \$10 ea; plastic barrels, 55 gal, \$10 ea; 275 gal water totes, \$75; other items. Jeff Brittain, Hickory 828-327-4782.

Firewood, farm cut, 6 ft. bed or under, p/u only, \$40; gate posts, 8 ft., 8-10 in. diameter, \$15 ea. G. Stowe, Graham 336-675-0466.

Gourds, field-grown, several sizes, \$2 ea. Bob Whitaker, Mocksville 336-469-4822, no texts.

Myers shallow well pump, 110 or 220v, w/Square D regulator, EC, \$185. Jack Matthews, Charlotte 704-846-1903.

Seasoned hardwood, ready to use, buyer hauls, short bed, \$50; long bed, \$60. James Percival, Winston Salem 336-978-3736.

Lincoln wire welder, PAK 155; Lincoln arc welder, AC 225 amp, \$225 ea. Scotty Greene, Mt. Ulla 704-278-2588.

North Star generator, 8 kw, used once, \$1,295. Carey Davis, Peachland 704-624-6269.

Cedar & locust posts, 6 ft., \$2.50 ea. Stephen Sharpe, Greensboro 336-209-8075.

Jet pump, 1 hp, GC, used less than 1 hr., \$100. Jerrold Bowman, Mt. Airy 336-789-3250.

Wisconsin 2 cyl eng on generator, \$400. Gerald Phillips, Siler City 919-742-2368.

Wisconsin eng w/Hobart irrig pump, \$300; cast iron wood stove, \$150; lp gas heater, 70,000 btu, \$75. Alex Vernon, Stoneville 336-207-5730.

Red & white oak boards, 8 in. wide, 8 ft. long, air dried 7 years, \$10 ea. James Allen, Mt. Gilead 910-586-4886.

Alum irrig pipe, 6 in. ring lock, 75+ 30 ft. sticks, \$130/stick; elbows, \$75; T's, \$90; other supplies. Dave Slater, Tryon 828-817-2169.

SafGuard home pasturizer, 2 gal capacity, electric, GC, \$75. Linda Hardison, Robbins 910-948-4121.

Cider press, solid maple, twin baskets, \$100; Mighty Mac 22 gal sprayer, B&S eng, pump, EC, \$100. Jim Crawford, Taylorsville 828-495-7909.

Fuel tank, 500 gal, used for home heating, above ground, EC, \$600. Mark Sloan, Olin 704-539-5356.



Supplies Wanted

Wooden barrels, 50 gal; wooden ox yoke. Henry Zehr, Union Grove 336-468-6370.



Trucks & Trailers For Sale

'75 dump truck, 2-ton, doub cyl, \$2,700 nego. Tony Hedrick, Lexington 336-843-8172.

ATV for farm use, LN, has doors & back window, very clean, \$7,000. Nancy Barlow, State Road 336-874-2166.

1978 Kentucky trailer, used for hay storage, no leaks, needs work to be rd legal, \$500 obo. Renee Caron, Madison 336-944-1870.

TRUCKS & TRAILERS

2007 Stoll livestock trailer, gooseneck, 20 ft., LNC, \$7,300. Ray Mayse, Bostic 828-245-9373.

1999 Ford 550 super duty, 8x10 alum bed/tool box, 136,000 mi, hyd/elect brakes, new tires, EC, \$16,000. Ronald Hammonds, Lumberton 910-734-2991.

1968 Chevy C-50 truck, 14 ft. dump body, 4 ft. grain sides, 350 motor, 4-spd trans, 2-spd rear end, GC, \$3,500. Lance Bass, Spring Hope 252-478-3169.

15 ft. wagon, 6-ton Kory run gear, heavy steel frame, field-hwy ready, stand cuffs, rear buckboard, sheltered, \$1,850. E.W. Gann, Mocksville 704-985-6642.

Metal truck bed, 12 ft. x 95 in., 15 in. removable metal sides, storage compartments under bed, \$2,200. Kenneth Mount, Sparta 336-363-4864.

4 trailers, \$400 ea; 4x8 farm sled, \$500. Pete Hal-lyburton, Cleveland 704-213-4537.

Cattle trailer, 6x12, swinging center gate, sliding rear gate, VGC, \$1,500 obo. Larry York, Staley 336-824-2077.

2001 F150 4x4, 4.6 v8, good eng & trans, tow pkg, \$4,175. Wayne Jones, Walstonburg 252-236-6090.

Used Calico stock trailer, gooseneck, 16 ft., \$3,995; Calico bumper pull stock trailer, 16 ft., \$5,895. Y.D. Saul, Elon 336-213-6292 or 260-7606.

2003 livestock trailer, 18 ft., gooseneck, dressing/sleeping area, cut gate, doub swing rear door, \$10,500. Wythe Quarles, Nashville 252-459-4892.

2000 Intl truck, diesel, 20 ft. metal bed, good tires, VGC, \$8,500. Skipper Russell, Waynesville 828-734-5500.

JD Gator w/dump bed, 4x2, new tires, new seats, new battery, GC, \$2,400. Robert Davis, Kernersville 336-414-2977.



Trucks & Trailers Wanted

Steering sector for 1972 Ford truck, 3/4 or 1-ton. Larry Sanders Troy 910-220-2480.

Dump trailer, 6 ft. wide, 12 or 14 ft. long. David Arron, Snow Camp 336-212-5943 or 512-9557.

Intl Scouts, complete or parts, literature. Scott Culbreth, Kinston 252-521-2141.

Read more on ag

To keep up with the latest on the N.C. Department of Agriculture and Consumer Services, check out the department's blog at www.ncagr.gov/blog, where you can also find social media links.



Purple carrots

(Continued from pg. 1)

The North Carolina Biotechnology Center works to bring economic development to the state through the life sciences. Ulanich is the executive director of the center’s Crop Commercialization Program. He began seeing potential a couple of years ago, especially after the European Union made new rules about dyes. Natural purple dye from carrots probably wouldn’t help with rare carrot allergies, but it could provide an alternative to synthetic dyes, including the controversial Red Dye 40.

Grants propel trials

In 2017, with growth of the natural dye market in mind, NCBiotech contracted with a company called Tidewater Agronomics to do the first small trial in Belvidere. Then they decided to do more trials across the state for the 2019 growing season.

What followed has been pretty exciting for those working on the project. In the past year, the purple carrots have gone from planting, to harvesting, to being pureed for dye. The twitter account for NCBiotech’s Crop Commercialization Program highlighted a few of the steps in quick videos – showing harvesting, blanching and the puree that’s used for the final product.

A grant from the N.C. Department of Agriculture and Consumer Services helped make that possible. The department’s New and Emerging Crops Program awarded NCBiotech \$113,523 to expand the research after the initial small trial with Tidewater Agronomics. Hoping to test conditions in different soils and climates from the mountains to the coast, NCBiotech chose to do trials at research stations in Waynesville, Clinton and Kinston. More work also continued at Tidewater’s Belvidere site, and The College of Agriculture and Environmental Sciences at N.C. A&T also grew purple carrots in a hoop house on its Greensboro farm.

The 2019 research went so well, NCBiotech applied for a second grant, and the New and Emerging Crops Program awarded the organization \$65,000 for further research in the 2020 season.

“It’s been a long time since we’ve had variety trials like this,” Hunter Barrier said about the 2019 research.

Barrier works for the NCDA&CS Research Stations Division as an agricultural research manager in horticulture and as the coordinator of the New and Emerging Crops Program. He said the 2019 purple carrot research involved planting five different carrot varieties – four purple and one orange – on different planting dates. (While purple carrots go back hundreds of years, the varieties used were newer hybrids, not heirloom varieties.) The goal was to figure out which planting time and variety produced the best product for good quality dye.

The North Carolina Food Innovation Lab in Kannapolis evaluated the qualities of each colorant produced to determine which would be best suited for companies to use. Ulanich said six companies have already expressed interest in the purple carrots for dye, food processing or other uses.

The 2020 research will focus on disease management in the purple carrots as well as the economic viability of growing purple carrots in North Carolina – whether they can be grown cost-effectively and whether there’s a sufficient global demand. That research will be cut back to one research station.

Ulanich said if the purple carrots continue to show promise, there could be an effort to get the seeds into the hands of farmers, and NCBiotech would reach out to more companies to see if they have a true ongoing interest in using the purple carrots. If so, North Carolina farmers have the potential to lead the way in producing natural purple colorant for the world. A lot will depend on what the experts at N.C. State and N.C. A&T find in their research.

“We try to translate that research into economic development,” Ulanich said.

He added that while the idea to test purple carrots started with dye, the 2019 research revealed there could be other uses for the carrots too. In addition to dye, Ulanich said there’s interest in selling the carrots for eating just like orange carrots, and there are other food processing ideas that are too preliminary to even reveal.

“[The trials] expanded possibilities, and it opens up markets for potential growers,” Ulanich said.

Those expanded possibilities have Barrier pretty excited too. After all, he said the New and Emerging Crops Program is “all about identifying new opportunities.”

“We want to create operational diversity on the farm and long term sustainable income,” Barrier said. “I’m excited about this. This could create some real opportunity.”

Role of research stations

Ulanich said the research stations were a great resource because everything



Top photo, purple carrots that are part of a research project are placed on a grid to chart growth. Bottom, washed carrots are prepped for processing and extracting color. Photos courtesy of Tidewater Agronomics

needed to be consistent across the research areas, and there needed to be confidence that anyone working on the project was well trained also.

“It was very helpful [to have the established research stations] to identify places and multiple resources to get the ball rolling more quickly,” Ulanich said. “We felt very confident they’d be able to do it, and they had experience.”

NCDA&CS research stations were an obvious choice for the work because they can coordinate equipment and people across the state. Researchers from N.C. State are integral to the research stations as well, and they’re a vital component.

“We can test every type of scenario a farmer would encounter,” Barrier said.

He believes the greatest asset of the research stations is the people. Dr. Chris Gunter, Ph.D., led the research in Clinton and Kinston, while Dr. Jeanine Davis, Ph.D., led in Waynesville. Barrier also mentioned Chad Moody in Waynesville, Wesley Hairr in Clinton and Evan Taylor in Kinston who have been important leaders in the purple carrots research.

The research stations are collaborations between NCDA&CS and N.C. State University. There are 18 across the state.

Sausage Sheet Pan Dinner offers easy preparation and clean up

Sheet pan dinners are easy-to-prepare meals with easy clean up.

This simple and tasty meal features many North Carolina ingredients and was shared in the September 2018 Our State Magazine by food blogger and photographer, Elena Brent Rosemond-Hoerr.

Servings: 4

Cook Time: Prep Time: 30 minutes; Total Time: 55 minutes

NC Ingredients: sausage, sweet potato, eggplant, red potatoes, tomato Ingredients

- 1 lb. Neese’s Country Sausage
- 1 white onion
- 1small eggplant
- 1small sweet potato
- 5 small red potatoes
- 2 Tbsp. olive oil
- Pinch of salt
- Pinch of pepper

Directions

Heat oven to 375°. Thinly slice the sweet potatoes, red potatoes, and eggplant. Peel, halve, and slice the onion. Spread evenly on a large sheet pan, leaving 3-4 inches of room for the sausage. Crumble the Neese’s Country Sausage at the top. Evenly salt and pepper the ingredients and drizzle olive oil over the top. Cook for 20-25 minutes, until the potatoes are cooked through.

While the sheet pan is in the oven, peel and slice the avocado, dice the tomato, and slice the radish. To make the aioli, whisk together the mayonnaise, lemon juice, and paprika in a small bowl.

Plate the sausage, potatoes, onions, and eggplant, and top with avocado, tomatoes, and radish. Drizzle aioli on top and serve.

Sausage Sheet Pan Dinner

Aioli:

- ½ cup mayonnaise
- Juice of 1 lemon
- ½ tsp. paprika or chipotle powder

Toppings (optional):

- 1 avocado
- 1 large tomato (or pint of cherry tomatoes)
- 3 to 4 radishes

